

What is claimed is:

1 1. A peptide less than 19 amino acids in length,
2 wherein the peptide comprises the amino sequence Leu Met Gly
3 Thr Leu Gly Ile Val Cys Pro Ile Cys (SEQ ID NO:16).

1 2. The peptide of claim 1, wherein the peptide's
2 amino acid sequence comprises Leu Leu Met Gly Thr Leu Gly
3 Ile Val Cys Pro Ile Cys (SEQ ID NO:3).

1 3. The peptide of claim 1, wherein the peptide's
2 sequence comprises Xaa Leu Met Gly Thr Leu Gly Ile Val Cys
3 Pro Ile Cys, Xaa being Met, Ala, Ser, Arg, Lys, Gly, Gln,
4 Asp, or Glu (SEQ ID NO:19).

1 4. The peptide of claim 3, wherein Xaa is Ala or
2 Met.

1 5. The peptide of claim 1, wherein the peptide's
2 sequence comprises Leu Leu Met Gly Thr Leu Gly Ile Val Cys
3 Pro Ile Cys Ser Gln Lys (SEQ ID NO:25).

1 6. A peptide less than 19 amino acids in length,
2 wherein the peptide comprises the amino acid sequence Gly
3 Thr Leu Gly Ile Val Cys Pro Ile (SEQ ID NO:21).

1 7. The peptide of claim 6, wherein the peptide's
2 sequence comprises Xaa Gly Thr Leu Gly Ile Val Cys Pro Ile
3 Cys, Xaa being Met, Ala, Ser, Arg, Lys, Gly, Gln, Asp, or
4 Glu (SEQ ID NO:25).

1 8. The peptide of claim 6, wherein the peptide's
2 sequence comprises Met Gly Ile Val Cys Pro Ile Cys (SEQ ID
3 NO:26).

1 9. The peptide of claim 7, wherein the peptide's
2 sequence consists of Xaa Gly Thr Leu Gly Ile Val Cys Pro Ile
3 Cys, Xaa being Met, Ala, Ser, Arg, Lys, Gly, Gln, Asp, or
4 Glu.

1 10. The peptide of claim 8, wherein the peptide's
2 sequence consists of Met Gly Thr Leu Gly Ile Val Cys Pro Ile
3 Cys Ser Gln Lys (SEQ ID NO: 26).

1 11. A peptide consisting of the amino acid sequence
2 Thr Leu Gly Ile Val Cys Pro Ile (SEQ ID NO:20).

1 12. A polypeptide comprising a first peptide and a
2 second peptide linked by a peptide bond, the first peptide
3 being a peptide which controls intracellular trafficking of
4 a peptide to which it is attached, and the second peptide
5 consisting of a sequence 12-18 amino acids in length
6 comprising the sequence Leu Met Gly Thr Leu Gly Ile Val Cys
7 Pro Ile Cys (SEQ ID NO:16).

1 13. The polypeptide of claim 12, wherein the
2 sequence of the first peptide comprises the amino acid
3 sequence Met Ala Ile Ser Gly Val Pro Val Leu Gly Phe Phe Ile
4 Ile Ala Val Leu Met Ser Ala Gln Glu Ser Trp Ala (SEQ ID
5 NO:18).

1 14. The polypeptide of claim 12, wherein the amino
2 acid sequence of the second peptide is Xaa Leu Met Gly Thr

3 Leu Gly Ile Val Cys Pro Ile Cys, Xaa being Met, Leu, Ala,
4 Ser, Arg, Lys, Gly, Gln, Asp, or Glu (SEQ ID NO:19).

1 15. The polypeptide of claim 12, wherein the amino
2 acid sequence of the second polypeptide is Ala Leu Met Gly
3 Thr Leu Gly Ile Val Cys Pro Ile Cys (SEQ ID NO:4).

1 16. The polypeptide of claim 13, wherein the amino
2 acid sequence of the second peptide is Xaa Leu Met Gly Thr
3 Leu Gly Ile Val Cys Pro Ile Cys, Xaa being Met, Leu, Ala,
4 Ser, Arg, Lys, Gly, Gln, Asp, or Glu (SEQ ID NO:19).

1 17. The polypeptide of claim 13, wherein the amino
2 acid sequence of the second peptide is Ala Leu Met Gly Thr
3 Leu Gly Ile Val Cys Pro Ile Cys (SEQ ID NO:4).

1 18. A polypeptide comprising a first peptide and a
2 second peptide linked by a peptide bond, the first peptide
3 being a peptide which controls intracellular trafficking of
4 a peptide to which it is attached, and the second peptide
5 consisting of a sequence 8-18 amino acids in length
6 comprising the sequence Thr Leu Gly Ile Val Cys Pro Ile (SEQ
7 ID NO:20).

1 19. A therapeutic composition comprising
2 (a) the peptide of claim 1, and
3 (b) a pharmaceutically acceptable carrier.

1 20. A therapeutic composition comprising
2 (a) the peptide of claim 6, and
3 (b) a pharmaceutically acceptable carrier.

- 1 21. A microparticle comprising a polymeric matrix
2 and the peptide of claim 1.
- 1 22. A microparticle comprising a polymeric matrix
2 and the peptide of claim 6.
- 1 23. A microparticle comprising a polymeric matrix
2 and the polypeptide of claim 1.
- 1 24. A microparticle comprising a polymeric matrix
2 and the polypeptide of claim 18.
- 1 25. A liposome or immune-stimulating complex
2 (ISCOM) containing the peptide of claim 1.
- 1 26. A liposome or immune-stimulating complex
2 (ISCOM) containing the peptide of claim 6.
- 1 27. A method of eliciting an MHC class I-mediated
2 immune response in a mammal, which method comprises
3 administering a purified preparation of the peptide of claim
4 1 to a mammal.
- 1 28. A method of eliciting an MHC class I-mediated
2 immune response in a mammal, which method comprises
3 administering a purified preparation of the peptide of claim
4 6 to a mammal.
- 1 29. A method of eliciting an MHC class I-mediated
2 immune response in a mammal, which method comprises
3 administering the microparticle of claim 21 to a mammal.

1 30. The method of claim 29, wherein the polymeric
2 matrix of said microparticle consists essentially of a
3 copolymer of poly-lactic-co-glycolic acid (PLGA).

1 31. A method of eliciting an MHC class I-mediated
2 immune response in a mammal, which method comprises
3 administering the microparticle of claim 22 to a mammal.

1 32. The method of claim 31, wherein the polymeric
2 matrix of said microparticle consists essentially of a
3 copolymer of poly-lactic-co-glycolic acid (PLGA).

1 33. A nucleic acid comprising a coding sequence
2 coding for expression of the peptide of claim 1.

1 34. A nucleic acid comprising a coding sequence
2 coding for expression of the peptide of claim 6.

1 35. A nucleic acid comprising a coding sequence
2 coding for expression of the polypeptide of claim 12.

1 36. A nucleic acid comprising a coding sequence
2 coding for expression of the polypeptide of claim 18.

1 37. A plasmid comprising a coding sequence coding
2 for expression of the polypeptide of claim 12.

1 38. A microparticle comprising a polymeric matrix
2 and the plasmid of claim 37.

1 39. The microparticle of claim 38, wherein the
2 polymeric matrix of the microparticle consists essentially
3 of a copolymer of PLGA.

1 40. The microparticle of claim 38, wherein the
2 microparticle has a diameter of 0.02 to 20 microns.

1 41. The microparticle of claim 38, wherein the
2 microparticle has a diameter of less than about 11 microns.

1 42. A cell comprising the plasmid of claim 37.

1 43. The cell of claim 42, wherein the cell is a
2 mammalian B cell or APC.

1 44. A method of making a polypeptide, which method
2 comprises maintaining the cell of claim 42 under conditions
3 permitting expression of said polypeptide.

1 45. A plasmid comprising a coding sequence coding
2 for expression of the polypeptide of claim 18.

1 46. A microparticle comprising a polymeric matrix
2 and the plasmid of claim 45.

1 47. The microparticle of claim 46, wherein the
2 polymeric matrix of said microparticle consists essentially
3 of a copolymer of PLGA.

1 48. The microparticle of claim 46, wherein the
2 microparticle has a diameter of 0.02 to 20 microns.

1 49. The microparticle of claim 46, wherein the
2 microparticle has a diameter of less than about 11 microns.

1 50. A cell comprising the plasmid of claim 45.

1 51. The cell of claim 50, wherein the cell is a
2 mammalian B cell or APC.

1 52. A method of making a peptide, which method
2 comprises maintaining the cell of claim 50 under conditions
3 permitting expression of said polypeptide.

1 53. A method of inducing an immune response in a
2 mammal, which method comprises administering the nucleic
3 acid of claim 35 to a mammal.

1 54. A method of inducing an immune response in a
2 mammal, which method comprises administering the nucleic
3 acid of claim 36 to a mammal.

1 55. A method of inducing an immune response in a
2 mammal, which method comprises administering the plasmid of
3 claim 37 to a mammal.

1 56. A method of inducing an immune response in a
2 mammal, which method comprises administering the plasmid of
3 claim 45 to a mammal.

1 57. A method of inducing an immune response in a
2 mammal, which method comprises administering the
3 microparticle of claim 38 to a mammal.

1 58. The method of claim 57, wherein the mammal is a
2 human.

1 59. The method of claim 58, wherein the human
2 suffers from, or is at risk of a condition selected from the
3 group consisting of exophytic condyloma, flat condyloma,
4 cervical cancer, respiratory papilloma, conjunctival
5 papilloma, genital-tract HPV infection, and cervical
6 dysplasia.

1 60. A method of inducing an immune response in a
2 mammal, which method comprises administering the
3 microparticle of claim 46 to a mammal.

1 61. The method of claim 60, wherein the mammal is a
2 human.

1 62. The method of claim 61, wherein the human
2 suffers from, or is at risk of, a condition selected from
3 the group consisting of exophytic condyloma, flat condyloma,
4 cervical cancer, respiratory papilloma, conjunctival
5 papilloma, genital-tract HPV infection, and cervical
6 dysplasia.

1 63. A plasmid DNA comprising the sequence of SEQ ID
2 NO:7.

1 64. A microparticle comprising a polymeric matrix
2 and a nucleic acid, wherein the polymeric matrix consists
3 essentially of PLGA and the nucleic acid comprises the
4 sequence of SEQ ID NO:7.

1 65. A method of inducing a cell mediated, anti-HPV
2 immune response in a mammal, which method comprises
3 administering to the mammal a DNA comprising the sequence of
4 SEQ ID NO:7.

1 66. A method of inducing an immune response in a
2 patient, which method comprises administering to the patient
3 a microparticle having a diameter of less than 20 microns
4 and consisting essentially of a polymeric matrix and a
5 nucleic acid molecule, wherein the polymeric matrix consists
6 essentially of PLGA and the nucleic acid molecule comprises
7 the sequence of SEQ ID NO:7.

1 67. A DNA comprising the sequence of SEQ ID NO:5.

1 68. A DNA comprising the sequence of nucleotides
2 3219-3624 of SEQ ID NO:7.

1 69. A DNA comprising the sequence of nucleotides
2 3290-3413 of SEQ ID NO:7.